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***Phylloporia tiliae* sp. nov. from China**

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ABSTRACT — A new species, *Phylloporia tiliae*, is described and illustrated from Hunan Province, China. It is distinguished from other *Phylloporia* species by its combination of a perennial habit, pileate basidiocarps, a crusted pileal surface with tomentose margin, minute pores, and a monomitic hyphal system.

KEY WORDS — *Hymenochaetaceae*, *Hymenochaetales*, polypore, taxonomy

Introduction

Phylloporia Murrill was erected for *P. parasitica* Murrill, growing on living leaves (Murrill 1904). Most species of this genus have been found on living trees and also sometimes on dead wood (Zhou & Dai 2012). The genus has a worldwide distribution (Ryvarden & Johansen 1980, Gilbertson & Ryvarden 1987, Ryvarden & Gilbertson 1994, Núñez & Ryvarden 2000, Dai 2010, 2012), and includes a total of 24 species (Zhou & Dai 2012, Decock et al. 2013).

Phylloporia is a monophyletic genus within the *Hymenochaetaceae* (Valenzuela et al. 2011, Zhou & Dai 2012). All *Phylloporia* species share abundant thick-walled tiny colored basidiospores and lack setae (Wagner & Ryvarden 2002, Ipuleit & Ryvarden 2005, Douanla-Meli et al. 2007, Cui et al. 2010, Valenzuela et al. 2011, Zhou & Dai 2012); however, this genus is highly diverse in morphology and life strategy (see Zhou & Dai 2012 for detail).

Cui et al. (2010) reported two new species of *Phylloporia* from South China. Recently, Zhou & Dai (2012) described five new species from all over China based on morphological and phylogenetic evidence and provided a key to worldwide species thus far accepted in *Phylloporia*. However, there are still a number of Chinese specimens that show generic characters but have not been identified to species level. One of these is described and illustrated here as *Phylloporia tiliae*.

Materials & methods

The holotype specimen was deposited at the herbarium of Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang, P.R. China (IFP). The microscopic procedure follows Zhao et al. (2013). The following abbreviations are used: IKI = Melzer's reagent, IKI- = inamyloid and non-dextrinoid, CB = Cotton Blue, CB(+) = weakly cyanophilous, KOH = 5% potassium hydroxide, L = mean basidiospore length (arithmetic average of all basidiospores), W = mean basidiospore width (arithmetic average of all basidiospores), Q = variation in the L/W ratios between the specimens, and n = number of basidiospores measured/number of specimens measured. Sections prepared in IKI, CB and KOH solutions were studied using a Nikon Eclipse 80i microscope at magnifications up to $\times 1000$. When presenting the basidiospore size variation, the upper and lower 5% of measurements are excluded from the range and the extreme values are presented in parentheses. Line drawings were made with the aid of a light tube. Special color terms follow Petersen (1996).

Taxonomy

Phylloporia tiliae L.W. Zhou, sp. nov.

FIGURE 1

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Differs from *Phylloporia pectinata* in its monomitic hyphal system and narrower basidiospores.

TYPE: China. Hunan Province, Zhangjiajie, Tianmenshan National Forest Park, on living *Tilia* (*Malvaceae*), 19.VIII.2010, Yuan 5491 (**holotype**, IFP).

ETYMOLOGY: *tiliae* (Lat.): refers to the host genus.

BASIDIOCARPS perennial, pileate, single, without odor or taste when fresh. **PILEI** dimidiate, projecting up to 7.5 cm, 5.5 cm wide, and 2 cm thick at base. **PILEAL SURFACE** glabrous, crust, mouse-grey, azonate; **MARGIN** tomentose, obtuse, curry-yellow to yellowish brown, a distinct groove between margin and other part of the pileal surface. **PORE SURFACE** honey-yellow, glancing; **STERILE MARGIN** distinct, curry-yellow, up to 1 mm wide; **PORES** circular, 9–12 per mm; **DISSEPIENTS** thin, entire. **CONTEXT** duplex when juvenile, up to 6.5 mm thick, with a black line, the lower context woody hard, yellowish brown, up to 2.5 mm thick, upper context as a tomentum, soft corky, cinnamon-buff, yellowish brown, up to 4 mm thick, the black line becoming a crust with age. **TUBES** yellowish brown, woody, each layer up to 1 mm long.

HYPHAL SYSTEM monomitic; **GENERATIVE HYPHAE** simple septate; tissue becoming reddish brown in KOH but otherwise unchanged. **CONTEXTUAL HYPHAE** pale yellowish to yellowish, slightly thick- to thick-walled with a wide lumen, rarely branched, frequently simple septate, straight, regularly arranged, 2.5–4.5 μm in diam; **HYPHAE IN TOMENTUM** yellowish brown, slightly thick-walled, occasionally branched, frequently simple septate, loosely interwoven, 2–5 μm in diam; **HYPHAE IN THE BLACK ZONE (CRUST)** dark brown, distinctly thick-walled with a narrow lumen, strongly agglutinate, interwoven. **TRAMAL**

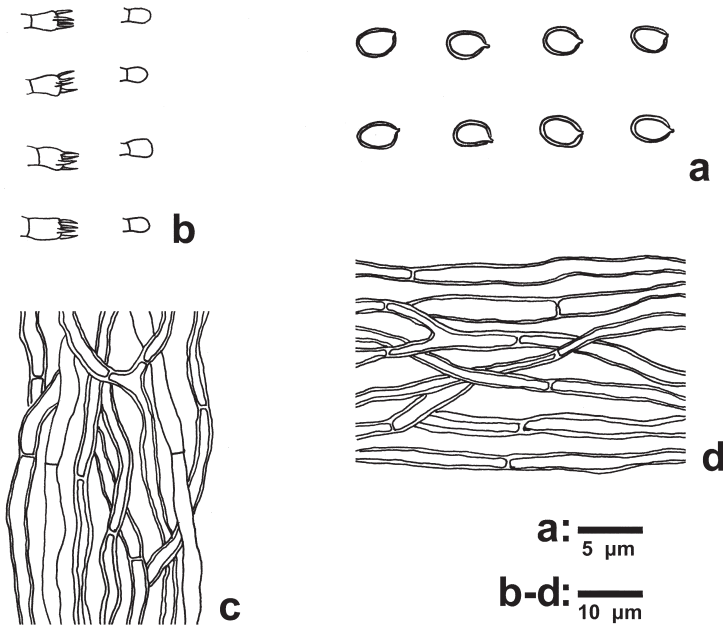


FIGURE 1. *Phylloporia tiliae* (holotype).
a: Basidiospores. b: Basidia and basidioles.
c: Hyphae from trama. d: Hyphae from the lower context.

HYPHAE hyaline, thin-walled to yellowish, thick-walled with a wide to narrow lumen, rarely branched, frequently simple septate, more or less straight, subparallel along the tubes, 2–4 µm in diam. **SETAE** absent; **CYSTIDIA** absent; **CYSTIDIOLES** absent. **BASIDIA** barrel-shaped with four sterigmata and a simple septum at the base, 4–6 × 3–4.5 µm; **BASIDIOLES** dominant, similar to basidia in shape, but slightly smaller. **BASIDIOSPORES** ellipsoid, yellowish, thick-walled, smooth, IKI–, CB(+), (2.8–)3–3.4(–3.5) × (1.9–)2–2.5(–2.6) µm, $L = 3.17$ µm, $W = 2.29$ µm, $Q = 1.38$ ($n = 30/1$).

REMARKS: *Phylloporia tiliae* has thick-walled tiny colored basidiospores and lacks setae, fulfilling the morphological characters of *Phylloporia*. The new species is characterized by the combination of a perennial habit, pileate basidiocarps, a crusted pileal surface with tomentose margin, small pores, and a monomitic hyphal system.

Macroscopically, *Phylloporia crataegi* L.W. Zhou & Y.C. Dai, *P. ephedrae* (Woron.) Parmasto, *P. gutta* L.W. Zhou & Y.C. Dai, *P. pectinata* (Klotzsch)

Ryvarden, and *P. ribis* (Schumach.) Ryvarden share perennial pileate basidiocarps with *P. tiliae*. However, *P. crataegi*, *P. ephedrae*, *P. gutta*, and *P. ribis* have larger pores (<9 per mm; Wagner & Ryvarden 2002, Zhou & Dai 2012).

Phylloporia pectinata has pores (8–10 per mm) similar in size to those of *P. tiliae*, and both species also share a black crust at the old part of pileal surface and duplex context; however, *P. pectinata* has a zonate and sulcate pileal surface with acute margin and (more importantly) a dimittic hyphal system and wider basidiospores (3 µm wide; Wagner & Ryvarden 2002).

Phylloporia fontanesiae L.W. Zhou & Y.C. Dai also has small pores (10–12 per mm) and a monomittic hyphal system like *P. tiliae*, but its annual habit, zonate sulcate pileal surface with acute margin, and shorter basidiospores (2.6–3 µm long; Zhou & Dai 2012) distinguish it from *P. tiliae*. In addition, *P. fontanesiae* was found on living *Fontanesia* (*Oleaceae*) in temperate China in Henan (Zhou & Dai 2012) and Shandong (data unpublished) provinces.

Phellinus minisporus B.K. Cui & Y.C. Dai, which was described from southern China and has similar pores, differs from *Phylloporia tiliae* in its resupinate habit, abundant hymenial setae, and smaller basidiospores (Cui et al. 2009).

Some *Phylloporia* species often inhabit living trees, affecting leaves, twigs, branches, and trunk bases, and have an exclusive host-specificity (Zhou & Dai 2012). This phenomenon exists in certain species of *Inonotus linteus* complex as well (Tian et al. 2003). Therefore, it is important to record the host information when collecting specimens of *Phylloporia* and even other genera in *Hymenochaetaceae*.

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